

REMARKS

This paper responds to the Office Action mailed on November 1, 2005.

Claims 38, 39, 40, and 42 are amended, no claims are canceled, and claims 80-83 are added; as a result, claims 38-45, 47-65 and 68-83 are now pending in this application.

The specification has been amended to update the priority information. The title is amended to more clearly reflect the claimed subject matter.

Claim 42 was amended to clarify the claim by adopting a consistent term throughout the claim as would be readily understood. This amendment is not intended to narrow the scope of the claim.

Interview Summary

The undersigned thanks the examiner for the courtesy extending in a telephone interview on 29 March 2006. The obviousness-type double patenting rejection was discussed. It was agreed that the prior Office Action contains an error in the patent number on which this obviousness-type double patenting rejection is based. Specifically, US 6,659,632, titled, Light Emitting Diode Lamp, was listed in the office action. This patent is not related to the present subject matter. It was discussed that the possible patent may be 6,596,632. The 6,596,632 is part of the same family of applications as the present application.

While not discussed in the interview, applicant points out that an obviousness-type double patenting over 6,596,632 may not be appropriate as the claims in this patent are directed to a method and the present claims are directed to structure. Applicant notes that MPEP 806.05(f) discusses how a process of making and product made can be distinct from each other.

Double Patenting Rejection

Claims 38-45, 47-65 and 68-70 were rejected under the judicially created doctrine of obviousness-type double patenting over claims 1-40 of U.S. Patent No. 6,659,632. This patent number is believed to be incorrect as discussed above. Applicant request withdrawal of this rejection.

§102 Rejection of the Claims

Claims 38-45, 47, 53-56, 58, 60-64 and 68 were rejected under 35 U.S.C. § 102(e) for anticipation by Tang (U.S. 5,506,172). Applicant respectfully traverses this rejection.

Appellant has not admitted that the cited Tang patent is prior art, and reserved the right to swear behind it at a later date. Nevertheless, Appellant respectfully submits that the pending claims are distinguishable over what may be shown in Tang for the reasons argued.

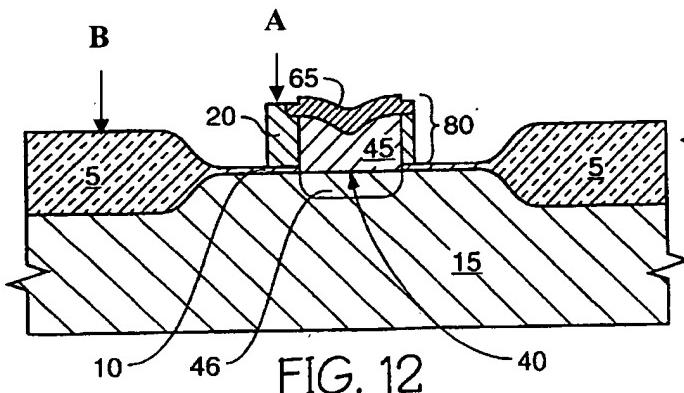
Anticipation requires the disclosure in a single prior art reference of each element of the claim under consideration. *In re Dillon* 919 F.2d 688, 16 USPQ2d 1897, 1908 (Fed. Cir. 1990) (en banc), cert. denied, 500 U.S. 904 (1991). “The identical invention must be shown in as complete detail as is contained in the ... claim.” *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989); MPEP § 2131.

Claim 38 recites, in part, “a first polycrystalline silicon layer overlying the oxide region but not the first substrate region and having a thickness selected such that a lowest upper surface of the first polycrystalline silicon layer is higher than the highest upper surface of the oxide region, wherein the lowest upper surface of the first polycrystalline silicon layer is distal the substrate layer.” Applicant can not find these features in Tang.

The Office Action at page 2, paragraph 4 states “Tang discloses in the manufacturing of a semiconductor interconnect as claimed. See FIGS. 1-13, where Tang teaches the claimed process.” Applicant respectfully disagrees with this statement. The present claims are directed to structures. For example, claim 38 includes a substrate layer, an oxide region, a first polycrystalline silicon layer, and a second polycrystalline silicon layer. Clarification of this part of the Office Action is requested.

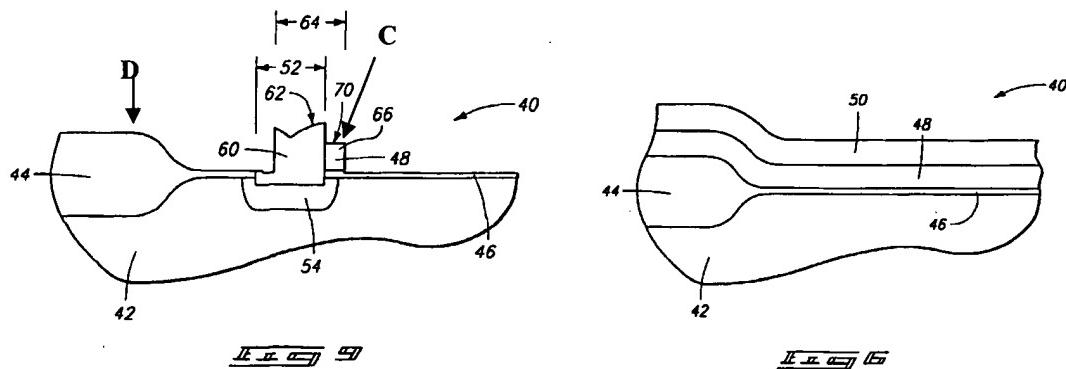
The Office Action in paragraph 5 spanning pages 2-3 discusses the elements of claim 38 in view of Tang. Specifically, the Office Action indicates that Tang’s layer 48 is equivalent to the first polycrystalline layer of claim 38. Applicant respectfully traverses. Claim 38 requires that the lowest upper surface of the first polycrystalline silicon layer is higher than the highest upper surface of the oxide region. Referring to Tang’s Figs. 6-9, layer 48 is lower than or at best equal to the highest upper surface of oxide layer 44.

At issue here is a simple factual issue of what is shown in the Tang patent relied upon by the Final Office Action.



The above Figure 12 is from Appellant's application. The designation A is added to show the upper surface of the first polycrystalline silicon layer. The reference B is added to show the highest upper surface of the oxide region.

For the purposes of comparison, Appellant has reproduced below Figures 9 and 6 of the cited Tang patent¹. Figure 6 of Tang which makes it clear that oxide layer 46 is a part of oxide layer 44. Finally, Appellant has added reference characters **C** and **D** to Figure 9 of Tang to designate where in Tang the surfaces A and B are located in Tang.



In contrast to what claim 38 requires, Tang shows a structure where the first layer 48 has its lowest upper surface **C** either *lower than* or *about equal to* the highest upper surface **D** of oxide region 44. Furthermore, Tang's specification does not ascribe any particular importance to the

¹ The Examiner used the same figure in the Final Office Action.

relationship between the height of the lowest upper surface of the first polycrystalline layer 48 and the height of the highest upper surface of oxide layer 44 as Applicants' patent specification does². Tang simply does not anticipate the height relationship that is specifically claimed in claim 38 and the other pending independent claims.

Accordingly, applicant can not find all of the features of claim 38 in Tang. As such, applicant request reconsideration and withdrawal of the rejection of claim 38.

Claim 39 recites, in part, "a first polycrystalline silicon layer overlying the oxide region but not the first substrate region and having a thickness selected such that a lowest upper surface of the first polycrystalline silicon layer is higher than the highest upper surface of the oxide region." These features are similar to those discussed above with regard to claim 38. Applicant submits that claim 39 is allowable over Tang for at least similar reasons as those stated above with regard to claim 38.

Claim 40 recites, in part,

an oxide region overlying at least a portion of the second substrate region, the oxide region including an upper surface distal the substrate layer and a lower surface proximal the substrate layer, the upper surface including a highest upper surface portion of the upper surface of the oxide region, the highest upper surface portion being a most distal portion of the upper surface relative to the substrate layer;

a first polycrystalline silicon layer overlying the oxide region but not the first substrate region, the first polycrystalline silicon layer including an upper surface distal the substrate layer and a lower surface proximal the substrate layer, the upper surface of the first polycrystalline silicon layer including a lowest upper surface portion that is a most proximal portion of upper surface of the first polycrystalline silicon layer with respect to the substrate layer and having a thickness selected such that a lowest upper surface of the first polycrystalline silicon layer is higher than a highest upper surface of the oxide region;

Applicant can not find these features in Tang. Claim 40 includes at least similar features to those discussed above with regard to claim 38. Accordingly, claim 40 is believed to be allowable for at least similar reasons. Moreover, claim 40 further recites features of the upper surfaces of the oxide region and the first polycrystalline silicon layer. These features further distinguish claim 40 over Tang. Reconsideration and withdrawal of the rejection of claim 40 are requested.

² See page 4, last line through page 5, lines 1–2.

Claim 41, recites, in part, “a first polycrystalline silicon layer overlying the field oxide and gate oxide regions but not the first substrate region and having a thickness selected such that the lowest upper surface of the first polycrystalline silicon layer is higher than the highest upper surface of the oxide regions.” Applicant can not find these features in Tang. The Office Action again refers to layer 48 of Tang as teaching these features. However, applicant can not find where Tang teaches a first polycrystalline silicon layer . . . having a thickness selected such that the lowest upper surface of the first polycrystalline silicon layer is higher than the highest upper surface of the oxide regions as recited in claim 41. Reconsideration and withdrawal of the rejection of claim 41 are requested.

Claims 42 and 43, each recite, in part, “a polycrystalline silicon layer overlying the oxide region but not the first substrate region and having a thickness selected such that a lowest upper surface of the polycrystalline silicon layer is higher than a highest upper surface of the oxide region.” Applicant can not find these features in Tang. Reconsideration and withdrawal of the rejection of claims 42 and 43 are requested.

Claim 44 recites, in part, “a first polycrystalline silicon layer overlying the oxide region but not the first substrate region and having a thickness selected such that a lowest upper surface of the first polycrystalline silicon layer is higher than a highest upper surface of the oxide region.” Applicant can not find these features in Tang. Reconsideration and withdrawal of the rejection of claim 44 are requested.

Claim 45 recites, in part, “a polycrystalline silicon layer overlying a portion of the oxide region adjacent the polycrystalline silicon plug, but not the first substrate region, the polycrystalline silicon layer having a thickness selected such that a lowest upper surface of the polycrystalline silicon layer is higher than a highest upper surface of the oxide region, the polycrystalline silicon layer also having an upper surface thereof in the region adjacent the polycrystalline silicon plug aligned with an upper surface of the polycrystalline silicon plug such that the vertical interface between the polycrystalline silicon layer and the polycrystalline silicon plug has no horizontal component.” Applicant can not find these features in Tang.

Reconsideration and withdrawal of the rejection of claim 45 are requested.

Claim 47 recites, in part, “a first polycrystalline silicon layer overlying a portion of the oxide region adjacent the first substrate region, but not the first substrate region, and having a

thickness selected such that a lowest upper surface of the first polycrystalline silicon layer is higher than a highest upper surface of the oxide region.” Applicant can not find these features in Tang. Reconsideration and withdrawal of the rejection of claim 47 are requested.

Claims 53-56, 58, 60-64 and 68 are dependent claims that recite further features. However, these features need not be argued at this time as these claims each depend from an allowable independent claim as discussed above.

§112 Rejection of the Claims

Claim 42 was rejected under 35 U.S.C. § 112, second paragraph, for indefiniteness. Applicant respectfully traverses and asserts that claim 42 was definite as previously presented. Withdrawal of this rejection is requested.

CONCLUSION

Applicant respectfully submits that the claims are in condition for allowance, and notification to that effect is earnestly requested. The Examiner is invited to telephone Applicant's attorney at (612) 349-9587 to facilitate prosecution of this application.

If necessary, please charge any additional fees or credit overpayment to Deposit Account No. 19-0743.

Respectfully submitted,

MARTIN C. ROBERTS ET AL.

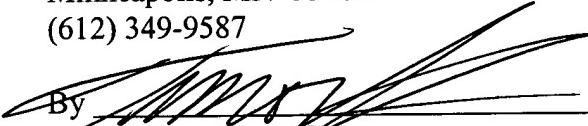
By their Representatives,

SCHWEGMAN, LUNDBERG, WOESSNER & KLUTH, P.A.
P.O. Box 2938
Minneapolis, MN 55402
(612) 349-9587

Date

30 March '06

By


Timothy B. Cluse
Reg. No. 40,957

CERTIFICATE UNDER 37 CFR 1.8: The undersigned hereby certifies that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail, in an envelope addressed to: Mail Stop Amendment, Commissioner of Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on this 30 day of March, 2006.

Name

LISA POSORSKE

Signature

Lisa Posorske